

WE CLAIM:

1. A lock comprising:

a casing adapted to firmly engage a first object with a second object;

a control knob assembly having a neck extending through the casing and rotatably received in the casing; and

a hooking engagement mechanism securely mounted on the control knob assembly to secure the control knob assembly to the casing, the hooking engagement mechanism having a follower member with a follower member aperture defined to receive therein the neck and a hook perpendicularly extending therefrom and a control plate firmly connected to the neck of the control knob assembly and having a cam formed to abut an inner face defining the follower member aperture of the follower member so that rotatable movement of the control knob assembly is able to drive the follower member to move linearly to complete an attachment and detachment with a securing appendage on the second object.

2. The lock as claimed in claim 1, wherein the control knob assembly has a control knob head that is integrally formed with the neck and two recesses defined in opposite sides of the neck to respectively receive therein a ball-spring combination, and the casing has one or more annular recessed areas defined in an inner face defining a casing aperture to correspond to the ball-spring combination such that, when the control knob assembly is rotated in the casing aperture of the casing, the control knob assembly is able to be positioned due to the relationship between the ball-spring combination and the annular recessed areas in the casing.

3. The lock as claimed in claim 1, wherein the hooking engagement mechanism further has a casing bushing and a second C-shaped clamp, the neck has a first annular groove

corresponding to the casing bushing and a second annular groove corresponding to the second C-shaped clamp so that the neck is able to be secured by the casing bushing and the second C-shaped clamp, and the follower member and the control plate are securely sandwiched between the casing bushing and the second C-shaped clamp.

4. The lock as claimed in claim 2, wherein the hooking engagement mechanism further has a casing bushing and a second C-shaped clamp, the neck has a first annular groove corresponding to the casing bushing and a second annular groove corresponding to the second C-shaped clamp so that the neck is able to be secured by the casing bushing and the second C-shaped clamp, and the follower member and the control plate are securely sandwiched between the casing bushing and the second C-shaped clamp.

5. The lock as claimed in claim 4, wherein the neck further has a flat portion formed on a free end of the neck and the control plate has a control plate aperture to correspond to the neck, the control plate aperture being so defined that, after the neck is received in the control plate aperture, the neck is immovable relative to the control plate.

6. The lock as claimed in claim 1, wherein the follower member has at least a positioning recess defined in a top face of the follower member to receive therein a spring such that, when the follower member is attached to the securing appendage, the spring is compressed, and, when the follower member is detached to the securing appendage, the spring is decompressed.

7. The lock as claimed in claim 2, where the follower member has at least a positioning recess defined in a top face of the follower member to receive therein a spring such that, when the follower member is attached to the securing appendage, the spring is compressed,

and, when the follower member is detached to the securing appendage, the spring is decompressed.

8. The lock as claimed in claim 3, wherein the follower member has at least a positioning recess defined in a top face of the follower member to receive therein a spring such that, when the follower member is attached to the securing appendage, the spring is compressed, and, when the follower member is detached to the securing appendage, the spring is decompressed.

9. The lock as claimed in claim 4, where the follower member has at least a positioning recess defined in a top face of the follower member to receive therein a spring such that, when the follower member is attached to the securing appendage, the spring is compressed, and, when the follower member is detached to the securing appendage, the spring is decompressed.

10. The lock as claimed in claim 5, where the follower member has at least a positioning recess defined in a top face of the follower member to receive therein a spring such that, when the follower member is attached to the securing appendage, the spring is compressed, and, when the follower member is detached to the securing appendage, the spring is decompressed.

11. A lock comprising:

a control knob with a hollow head and a neck integrally formed with and extending into the hollow head, wherein one or more receiving recesses are defined in an inner surface of the hollow head to receive therein locking pins and locking pin springs, and two control knob head

cutouts are respectively defined in an outer side face of the hollow head, each locking pin having a reduced diameter portion formed in a center of the locking pin;

a stopping plate engaging with distal ends of the locking pin springs to prevent the locking pins and the springs from escaping from the receiving recesses, the stopping plate provided with two stopping plate cutouts respectively defined in an outer side face of the stopping plate to correspond to the two control knob head cutouts in the hollow head; and

a casing with an aperture to rotatably receive therein the neck of the control knob and having at least two protruding bars to selectively align with the reduced diameter portions of the locking pins such that, when the reduced diameter portions of the locking pins are not in alignment with the protruding bars, the control knob is not rotatable relative to the casing, and, when the reduced diameter portions of the locking pins are in alignment with the protruding bars, the control knob is rotatable in relation to the casing.

12. A lock comprising:

A casing adapted to firmly engage with an object and having protruding bars formed on an inner surface defining a casing aperture in the casing;

a control knob attached to a neck, the neck extending through the casing and rotatably received in the casing, one or more receiving recesses defining in the control knob to movably receive therein a locking pin and a locking pin spring and a stopping plate engaging with distal ends of the locking pin spring to prevent the locking pin and the locking pin spring from escaping from the receiving recesses, the locking pin having a reduced diameter portion to selectively align with the protruding bars such that the control knob is rotatable with respect to the casing when the reduced diameter portions of the locking pin are in alignment with the

protruding bars, and, when the reduced diameter portions of the locking pin is in misalignment with the protruding bars, the control knob is immovable in relation to the casing; and

a hooking engagement mechanism securely mounted on the neck to secure the neck to the casing, the hooking engagement mechanism having a follower member assembly with a follower member aperture defined to receive therein the neck and a hook perpendicularly extending therefrom and a control plate firmly connected to the neck and having a boss formed to abut the follower aperture surface defining the follower member aperture of the follower member assembly so that rotatable movement of the control knob is able to drive the follower member assembly to move linearly to complete an attachment and detachment with a locking bar.

13. The lock as claimed in claim 12, wherein the control knob has a control knob head which is integrally formed with the neck and two recesses defined in opposite sides of the neck to respectively receive therein a ball-spring combination, the casing has multiple annular recessed areas defined in an inner face defining the casing aperture to correspond to the ball-spring combination such that, when the control knob is rotated in the casing aperture of the casing, the control knob is able to be positioned in a specific predefined orientation due to the relationship between the ball-spring combination and the annular recessed areas in the casing.

14. The lock as claimed in claim 12, wherein the hooking engagement mechanism further has a first C-shaped clamp and a second C-shaped clamp, the neck has a knob casing securing groove corresponding to the first C-shaped clamp and a control plate securing groove corresponding to the second C-shaped clamp so that the neck is able to be secured by the first and second C-shaped clamp and the follower member assembly, and the control plate are securely sandwiched between the first C-shaped clamp and the second C-shaped clamp.

15. The lock as claimed in claim 13, wherein the hooking engagement mechanism further has a first C-shaped clamp and a second C-shaped clamp, the neck has a knob casing securing groove corresponding to the first C-shaped clamp and a control plate securing groove corresponding to the second C-shaped clamp so that the neck is able to be secured by the first and second C-shaped clamp, and the follower member assembly and the control plate are securely sandwiched between the first C-shaped clamp and the second C-shaped clamp.

16. The lock as claimed in claim 15, wherein the neck further has control plate flat portions formed on a free end of the neck and the control plate has a control plate aperture to correspond to control plate flat portions on the neck, the control plate aperture being so defined that, after the neck is received in the control plate aperture, the neck is immovable relative to the control plate.

17. The lock as claimed in claim 12, wherein the follower member assembly has at least a positioning recess defined in a top face of the follower member assembly to receive therein a spring such that, when the follower member assembly is attached to the locking bar, the spring is compressed, and, when the follower member assembly is detached from the locking bar, the spring is decompressed.

18. The lock as claimed in claim 13, wherein the follower member assembly has at least a positioning recess defined in a top face of the follower member assembly to receive therein a spring such that, when the follower member assembly is attached to the locking bar, the spring is compressed, and, when the follower member assembly is detached from the locking bar, the spring is decompressed.

19. The lock as claimed in claim 14, wherein the follower member assembly has at least a positioning recess defined in a top face of the follower member assembly to receive therein a spring such that, when the follower member assembly is attached to the locking bar, the spring is compressed, and, when the follower member assembly is detached from the locking bar, the spring is decompressed.

20. The lock as claimed in claim 15, wherein the follower member assembly has at least a positioning recess defined in a top face of the follower member assembly to receive therein a spring such that, when the follower member assembly is attached to the locking bar, the spring is compressed, and, when the follower member assembly is detached from the locking bar, the spring is decompressed.

21. A lock for securing a first object to a second object comprising:

- a casing having a casing back and a first engagement portion for attaching the casing to the first object;
- a control knob assembly rotatably connected to the casing; and
- a hooking engagement mechanism operably connected to the control knob assembly and responsive to rotation of the control knob assembly and further including:
 - a cam operably connected to the control knob assembly and having a cam surface and a cam rotational axis, wherein the cam surface is noncircular with respect to the cam rotational axis such that rotation of the cam about the cam rotational axis results in the oscillation of the cam surface with respect to a fixed radius from the cam rotational axis;
 - a follower member having a follower member aperture for engaging the cam surface, wherein the oscillating of the cam surface causes the follower member to move linearly with respect to the cam rotational axis; and

a second engagement portion fixedly attached to the follower member, wherein the linear movement of the follower member causes the second engagement portion to move linearly to engage and disengage a securing appendage of a second object.

22. The lock of claim 21 wherein the follower member aperture includes a follower aperture surface, and wherein the cam surface is in moveable contact with the follower aperture surface such that the rotational movement of the cam causes the follower member to move linearly.

23. The lock of claim 21 wherein the movement of the follower member is restricted to moving in a linear path defined by a linear passageway in the casing.

24. The lock of claim 21 further comprising springs which urge the movement of the follower member in a linear path.

25. The lock of claim 21 further comprising a control plate having a control plate contact surface, wherein the control plate is operably connected to the control knob assembly and wherein the cam is fixedly connected to the control plate and protrudes from the control plate contact surface.

26. The lock of claim 25 wherein the control knob assembly further comprises a control knob head and a neck wherein the control knob and the control plate are fixedly connected to the neck.

27. The lock of claim 26 further comprising a bushing fixedly connected to the neck to secure the control plate and the follower member between the bushing and the casing back such that the cam surface is maintained within the follower member aperture.

28. The lock of claim 27 wherein the neck further contains an annular groove and wherein the bushing is a C-shaped clamp and wherein the C-shaped clamp is fixedly connected to the neck within the annular groove.

29. A lock for securing a first object to a second object comprising:
a casing having casing back and first engagement portion wherein the first engagement portion is hingedly attached to the first object;

a control knob assembly rotatably connected to the casing and further including:

a control knob head for rotating the control knob assembly; and

a neck fixedly attached to the control knob head and having a neck rotational axis;

and

a hooking engagement mechanism rotatably attached to the neck and further including:

a control plate having a control plate contact surface, wherein the control plate is fixedly attached to the neck;

a cam extending from the surface of the control plate contact surface, the cam having a cam surface and a cam rotational axis, wherein the cam surface is noncircular with respect to the cam rotational axis such that rotation of the cam about the cam rotational axis results in the oscillation of the cam surface with respect to a fixed radius from the cam rotational axis;

a follower member having a follower member aperture and a follower aperture surface, wherein the cam surface is in moveable contact with the follower aperture surface such that the rotational movement of the cam causes the follower member to move linearly with respect to the cam rotational axis;

a bushing fixedly connected to the neck such that the control plate and the follower member are maintained between the bushing and the casing back such that the cam surface is located within the follower member aperture; and

a second engagement portion fixedly attached to the follower member, wherein the linear movement of the follower member causes the second engagement portion to move linearly to engage and disengage a second object.

30. A lock for securing a first object to a second object comprising:

a casing having a casing aperture defined by a cylindrical inner face and having a protruding member extending from the cylindrical inner face into the casing aperture to a protruding member location; and

a control knob assembly located within the casing aperture and rotatably connected to the casing and further comprising at least two moveable members moveably attached thereto and capable of moving such that, in one position, the moveable members are located on either side of the protruding member and the control knob assembly is immovable in a rotatable direction, and, in another position, the moveable members are located relative to the protruding member and the control knob is moveable in a rotatable direction.

31. The lock of claim 30 wherein the moveable members are locking pins having a reduced diameter portion to selectively align with the protruding members such that the control knob is rotatable with respect to the casing when the reduced diameter portions of the locking pins are in alignment with the protruding members, and, when the reduced diameter portions of the locking pins are in misalignment with the protruding members, the control knob is immovable in relation to the casing.

32. The lock of claim 31 wherein moveable members are displaced by a properly configured key inserted into a key port in the control knob.

33. The lock of claim 31 wherein the control knob further comprises a front and wherein the locking pins are biased towards the front of the control knob by locking pin springs.

34. The lock of claim 33 wherein the distal ends of the locking pin springs are in contact with a stopping plate.

35. The lock of claim 34 wherein the control knob is connected to a neck and the neck is connected to the stopping plate.